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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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MARTINE & PENILLA, LLP
710 LAKEWAY DRIVE
SUITE 170
SUNNYVALE, CA 94085

EXAMINER	
LEE, RICHARD J	

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 06/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.	Applicant(s)
09/378,398	Teo
Examiner	**Art Unit**
Richard Lee	2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *May 13, 2003*

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-122* is/are pending in the application.

4a) Of the above, claim(s) *38-122* is/are withdrawn from consideratio

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-37* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examine

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

1. Applicant's election without traverse of group I, claims 1-37 in Paper No. 7 is acknowledged. Therefore, claims 1-37 will now be examined while claims 38-122 will be withdrawn from further consideration.

2. Claim 34 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

At claim 34, line 1, "said line processing circuitry" shows no clear antecedent basis.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-8, 12, 14-16, 18, 20, 23, 24, 27, 29-31, and 35-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Dunton et al (6,304,284).

Dunton et al discloses a method of and apparatus for creating panoramic or surround images using a motion sensor equipped camera as shown in Figures 1A, 1B, 2, 4, and 5, and the same camera as claimed in claims 1-8, 12, 14-16, 18, 20, 23, 24, 27, 29-31, and 35-37, comprising the same camera lens (see column 1, lines 15-26, column 2, lines 15-27, column 7, lines 62-65); acquisition circuitry receiving images via the camera lens, for acquiring a first field of view when the camera lens is in a first orientation (i.e., 112 of Figure 1A, and see column 2, line 50 to column 3, line 4) and for acquiring a second field of view when the camera lens is in a second orientation (i.e., 116 of Figure 1A, and see column 2, line 50 to column 3, line 4); a viewfinder (see column 8, lines 10-23) displaying the second field of view when the camera lens is in the second orientation and displaying at least a portion of the first field of view at least partially composited with the second field of view, the second field of view at least partially overlaps the first field of view (see column 8, lines 24-42); wherein a size of the at least a portion of the first field of view is prescribed relative to a size of the first field of view, the size of the at least a portion of the first field of view is prescribed relative to a size of the second field of view, the size of the at least a portion of the first field of view is its width, and the size of the second field of view is its width, the size of the at least a portion of the first field of view is its height, and the size of the second field of view is its height, the size of the at least a portion of the first field of view is the field of view angle it subtends, and the size of the second field of view is the field of view

angle it subtends (see Figures 1A and 3B, see column 5, lines 49-65, column 6, lines 20-50, column 7, line 52 to column 8, line 6); wherein the focus of the camera lens is not changed during acquisition of the first and second and at least one additional fields of view (see column 3, lines 32-47, column 7, line 52 to column 8, line 6); combining circuitry for combining the first and second fields of view, wherein the first and second fields of view are portions of a scene and wherein the combining circuitry combines the first and second fields of view into a panoramic image of the scene, the panoramic image has a cylindrical geometry, the panoramic image has a spherical geometry (see Figure 1, see column 4, line 49 to column 5, line 6, column 5, line 49 to column 6, line 50); view control circuitry for selecting a portion of the panoramic image to display, and wherein the viewfinder displays the selected portion of the panoramic image (see column 5, lines 49-65, column 6, lines 20-50, column 8, lines 10-42); wherein the acquisition circuitry acquires at least one additional field of view (i.e., 3rd position of Figure 1, and see column 2, lines 50-67, column 6, lines 20-50) with the camera lens being in at least one additional orientation, and wherein the viewfinder displays an additional field of view of the camera lens when the camera lens is in each additional orientation and displays at least a portion of at least one previously acquired field of view at least partially composited with the additional field of view, wherein each additional field of view at least partially overlaps the at least one previously acquired field of view (see column 6, lines 20-50, column 8, lines 10-42); the combining circuitry combining the first and second and the at least one additional fields of view, wherein the first and second and the at least one additional fields of view are portions of a scene and wherein the

combining circuitry combines the first and second and the at least one additional fields of view into a panoramic image of the scene (see Figure 1, see column 4, line 49 to column 5, line 6, column 5, line 49 to column 6, line 50); perspective conversion circuitry for converting a perspective of the at least a portion of the first field of view from the first orientation to the second orientation (see Figure 1, column 2, lines 50-67, column 6, lines 20-50); and an indicator indicating when the camera lens is in the second orientation, the indicator being a light and a beeper (see 516 of Figure 5, column 8, lines 10-62).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 9-11, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunton et al.

Dunton et al discloses substantially the same camera as above, but does not particularly disclose the followings:

(a) wherein the size of the at least a portion of the first field of view is prescribed to an amount between 20% and 40% of the size of the second field of view, wherein the at least a portion of the first field of view is composited with the second field of view by an opacity of

approximately 50%, and wherein the at least a portion of the first field of view is composited with the second field of view by an opacity of approximately 100% as claimed in claims 9-11; and

(b) wherein the at least a portion of the at least one previously acquired field of view is composited with the additional field of view by an opacity of approximately 50% and wherein the at least a portion of the at least one previously acquired field of view is composited with the additional field of view by an opacity of approximately 100% as claimed in claims 24 and 25.

Regarding (a) and (b), it is noted that Dunton et al does teach the particular combining of assembling sections 350 in to a pie 352 as shown in Figure 3B, thereby generating composite images for panoramic display and the particular use of mirror tilt actuator 316 being changed to an adjacent preset tilt position so that the camera system records a different cylindrical format surround with each revolution of camera system 300, wherein the preset tilt positions take into account the field of view of the camera system in the direction of the tilt and the overlap region desired between the top edge and the bottom edge of the adjacent cylindrical format surround images in the arc (see column 4, line 49 to column 6, line 19). As such, it is considered obvious that the tilt actuator 316 of Dunton et al may be adjusted to provide any desired cylindrical format, including the 20% to 40% of the size of the second field of view, and the tilt actuator may be adjusted to provide an desired overlap region, including the 50% or 100% opacity when compositing the first field of view with the second field of view or when compositing the previously acquired field of view with the additional field of view as claimed. Therefore, it would have been obvious to one of ordinary skill in the art, having the Dunton et al reference in front of

him/her and the general knowledge of the image formatting and compositing of images for panoramic display, would have had no difficulty in providing the adjustments of the tilt actuator 316 of Dunton et al necessary for providing the size of the at least a portion of the first field of view prescribed to an amount between 20% and 40% of the size of the second field of view, the compositing of the first field of view with the second field of view by an opacity of 50% or 100%, and the compositing of the previously acquired field of view with the additional field of view by an opacity of 50% or 100%, in view of Dunton et al teachings that the mirror tilt actuator may be changed to a desired and adjacent preset tilt position for the same well known different image formatting and desired overlapping region of images for panoramic displaying purposes as claimed.

7. Claims 13 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunton et al as applied to claims 1-8, 12, 14-16, 18, 20, 23, 24, 27, 29-31, and 35-37 in the above paragraph (4), and further in view of Inoue (6,144,804).

Dunton et al discloses substantially the same camera as above, but does not particularly disclose a lens focus lock for locking the focus of the camera lens during acquisition of the first and second and the at least one additional fields of view as claimed in claims 13 and 28. However, Inoue discloses a camera with visual line detection capability and teaches the conventional use of a camera with focus lock features (see column 4, lines 39-45). Therefore, it would have been obvious to one of ordinary skill in the art, having the Dunton et al and Inoue references in front of him/her and the general knowledge of camera focussing features, would

have had no difficulty in providing the lens focus lock feature as taught by Inoue for the camera of Dunton et al for the same well known fixed focussing of images purposes as claimed.

8. Claims 17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunton et al as applied to claims 1-8, 12, 14-16, 18, 20, 23, 24, 27, 29-31, and 35-37 in the above paragraph (4), and further in view of Kang et al (6,256,058).

Dunton et al discloses substantially the same camera as above, further including wherein the panoramic image has a cylindrical geometry (see column 5, lines 49-67).

Dunton et al does not particularly disclose, though, rectilinear to cylindrical conversion circuitry for converting the first and second fields of view from rectilinear coordinates to cylindrical coordinates and cylindrical to rectilinear conversion circuitry for converting the selected portion of the panoramic image from cylindrical coordinates to rectilinear coordinates as claimed in claim 17 and 21. The particular conversion of rectilinear coordinates to cylindrical coordinates and vice versa for images, in general, is old and well recognized in the art, as exemplified by Kang et al (see column 3, line 65 to column 4, line 7, column 4, lines 25-30, column 5, lines 6-60). Therefore, it would have been obvious to one of ordinary skill in the art, having the Dunton et al and Kang et al references in front of him/her and the general knowledge of rectilinear and cylindrical coordinate systems and the associated conversions between the coordinate systems, would have had no difficulty in providing the rectilinear to cylindrical conversion circuitry and cylindrical to rectilinear conversion circuitry as taught by Kang et al for

the panoramic images of Dunton et al for the same well known cylindrical and rectilinear coordinate compliance purposes as claimed.

9. Claims 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunton et al as applied to claims 1-8, 12, 14-16, 18, 20, 23, 24, 27, 29-31, and 35-37 in the above paragraph (4), and further in view of Dube et al (6,269,144).

Dunton et al discloses substantially the same camera as above, further including wherein the panoramic image has a spherical geometry (see column 6, lines 5-19).

Dunton et al does not particularly disclose, though, rectilinear to spherical conversion circuitry for converting the first and second fields of view from rectilinear coordinates to spherical coordinates and spherical to rectilinear conversion circuitry for converting the selected portion of the panoramic image from spherical coordinates to rectilinear coordinates as claimed in claim 19 and 22. The particular conversion of rectilinear coordinates to spherical coordinates, in general, is old and well recognized in the art, as exemplified by Dube et al (see column 3, lines 33-46, column 24, lines 1-12). And in view of such rectilinear to spherical conversion of Dube et al, it is consider obvious to provide the complementary spherical to rectilinear conversion of images as claimed. Therefore, it would have been obvious to one of ordinary skill in the art, having the Dunton et al and Dube et al references in front of him/her and the general knowledge of rectilinear and spherical coordinate systems and the associated conversions between the coordinate systems, would have had no difficulty in providing the rectilinear to spherical conversion circuitry and spherical to rectilinear conversion circuitry as taught by Dube et al for the panoramic images of

Dunton et al for the same well known spherical and rectilinear coordinate compliance purposes as claimed.

10. Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunton et al as applied to claims 1-8, 12, 14-16, 18, 20, 23, 24, 27, 29-31, and 35-37 in the above paragraph (4), and further in view of Truc et al (6,268,936).

Dunton et al discloses substantially the same camera as above, but does not particularly disclose perspective conversion circuitry including line processing circuitry for determining modified color values at pixel locations within vertical lines of the converted at least a portion of the first field of view, wherein the line processing circuitry determines modified color values at pixel locations within vertical lines of the converted at least a portion of the first field of view based on unmodified color values at a corresponding vertical line of the at least a portion of the first field of view as claimed in claims 32 and 33. However, Truc et al discloses a film scanner as shown in Figure 8 and teaches the conventional modification of colors associated with panoramic and photographic images (see column 5, lines 25-36, column 7, lines 26-40). Therefore, it would have been obvious to one of ordinary skill in the art, having the Dunton et al and Truc et al references in front of him/her and the general knowledge of color modification of images, would have had no difficulty in providing the color modification of images as taught by Truc et al for the panoramic images of Dunton et a for the same well known color enhancement purposes as claimed.

11. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Dunton et al and Truc et al as applied to claims 1-8, 12, 14-16, 18, 20, 23, 24, 27, 29-33, and 35-37 in the above paragraphs (4) and (10), and further in view of Yui et al (US 2002/0175924 A1).

The combination of Dunton et al and Truc et al discloses substantially the same camera as above, but does not particularly disclose wherein the line processing circuitry re-scales vertical lines of the at least a portion of the first field of view as claimed in claim 34. However, Yui et al discloses an image display system as shown in Figure 1, and teaches the particular re-scaling of vertical lines of images (see page 2, section [0026]). Therefore, it would have been obvious to one of ordinary skill in the art, having the Dunton et al, Truc et al, and Yui et al references in front of him/her and the general knowledge of image re-scalings, would have had no difficulty in providing the vertical line image re-scaling as taught by Yui et al for the panoramic images of Dunton et al for the same well known re-scaling of original image data purposes as claimed.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yano et al discloses a multiple lens image pickup apparatus.

Miller discloses a mounted immersive view.

Jain et al discloses a machine synthesis of a virtual video camera.

13. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314, (for formal communications intended for entry)

(for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (703) 308-6612. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with alternate Fridays off.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group customer service whose telephone number is (703) 306-0377.

RICHARD LEE
PRIMARY EXAMINER

Richard Lee/rl

5/28/03